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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/675,220	09/29/2000	Minoru Nakano	3094/FLK	1221

7590 09/04/2003

KATTEN, MUCHIN, ZAVIS, ROSENMAN
575 MADISON AVENUE
NEW YORK, NY 10022-2585

EXAMINER

EVERHART, CARIDAD

ART UNIT	PAPER NUMBER
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2825

DATE MAILED: 09/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/675,220

Applicant(s)

NAKANO ET AL.

Examiner

Caridad M. Everhart

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 15-17 and 22-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 15-17 and 22-27 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

This is to acknowledge that the change of address and the new attorney docket number have both been entered into the PALM system as requested by applicant. In a telephone conversation which was requested in applicant's remarks filed on the same date as the RCE, applicant's representative was advised on 8-22-03 that this action was being prepared. Included in the attached list of References Cited, is a citation of JP1008225, which was faxed with a copy of an IDS by applicant's representative 8-22-03 to the examiner and which had been previously filed by applicant.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-10,15-17, and 22-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moore, et al. ("Moore")(US 6,310,327B1) in view of Najm, et al ("Najm")(US 5,305,417).

Moore discloses an apparatus for epitaxial deposition(col. 11, lines 15-20). The susceptor can rotate(col. 35, lines 19-25). Power to each heating lamp is independent(col. 35, lines 58-63). That the radiant energy to each lamp is controlled by the proportionality of the voltage and current (col. 36, lines 15-20). Calibration runs are carried out to determine the power ratios (col. 37, lines 48-55). The information from the calibration runs are used by the computer to control the heating(col. 36, lines 45-57 and 62-67). The teaching that the wafer is brought to process temperature is interpreted as that the process temperature is the target temperature which is used as a reference(col. 35, lines 63-67 and col. 36, lines 1-4). Moore further suggests that in calibration runs temperature calibration is done to determine the temperature at the center and the outer edges of the wafer(col. 37, lines 47-64) and that these two temperatures would be different in the center and the edges is implicit in this disclosure made by Moore. That the power ratios are used to set the heating lamps is interpreted as that the power ratios may be set according to the needs for the process. When the wafer is first loaded, the preset values of the power ratios are used to set the heating lamps(col. 36 40-50). After the reaction chamber reaches a certain temperature during the process run, the sensed temperature is monitored, and the computer uses feedback, that is the measured temperature(col. 36, lines 61-67 and col. 37, lines 1-10). This corresponds to the limitation of claim 10. With respect to the calculation

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manipulations recited in the dependent claims, it is well known in the art how to calculate the power ratios and how to interpolate the values of the data and the calculated power ratios in order to obtain the control of the heating lamps which are carried out by the computer disclosed by Moore so that one of ordinary skill in the art would find it obvious to carry out these calculations.

Moore is silent with respect to the details of the calibration of the temperature determinations and the temperature sensors in the determining step being greater than in the process step.

Najm et al discloses calibration of a multipoint sensing apparatus in an RTP automated processing chamber (col. 3, lines 17-22, 45-50, and col. 4, lines 45-48). In calibration, sensing is accomplished in the calibration runs using more sensors than in a processing run(col. 4, lines 45-53); col. 5, lines 2-45; col. 6, lines 12-15; col. 7, lines 3-8, 45-53). During the calibration runs, wafer temperatures are measured at multiple locations along the wafer and at the quartz window of the RTP reactor (col. 7, lines 3-8, 42-52; col. 8, lines 3-8). During a processing run, the quartz window reading is used (col. 1, lines 54-67; col. 2, lines 1-8).

One of ordinary skill in the art would have been motivated to have carried out the calibration runs taught by Moore using more sensors for the calibration runs than for the processing runs as taught by Najm because Najm teaches that this gives more accurate knowledge of the wafer temperature than prior methods(col. 35-48) and because Moore teaches calculations from the calibration runs are used during the process, which

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would imply that there are fewer sensors from the process runs than from the calibration runs.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moore et al in view of Najm et al as applied to claim 1 above, and further in view of Halpin, et al "(Halpin)"(US 6113,702).

Moore in view of Najm is silent with respect to the details of the rotating susceptor.

Halpin is relied upon for its teaching of the details of the rotating susceptor such as the ring die(col. 4, lines 3-10).

One of ordinary skill in the art would have been motivated to have combined the teaching of Moore in view of Najm with the teaching of Halpin in order to obtain an improved structure for the rotating susceptor because Moore in view of Najm teaches a rotating susceptor in the process taught by Moore in view of Najm.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caridad M. Everhart whose telephone number is 703-308-3455. The examiner can normally be reached on Monday through Fridays 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on 703-308-1323. The fax phone numbers for the organization where this application or proceeding is assigned are 703-

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872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

C. Everhart
CARIDAD EVERHART
PRIMARY EXAMINER

C. Everhart
August 25, 2003